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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,750	07/10/2003	James L. Lewis JR.	C152 1111.1	2336

53312 7590 07/28/2005

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EXAMINER	
LIN, ING HOUR	
ART UNIT	**PAPER NUMBER**
1725	

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/616,750	LEWIS ET AL.	
	Examiner	Art Unit	
	Ing-Hour Lin	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 May 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-7, 10-12, 14-15, 17-19, 21-27, 29-31, and 33-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taccone in view of either Bergna, Swanson et al, Schimmel et al or Heine et al.

Taccone (col. 3, lines 43+) teaches the claimed method of removing a mold from a casting comprising proving a score (notch 115 in Fig. 8) and fracture force generated by mold breaker 112, breaking the score (notch) and dislodging at least a portion of the degraded mold

from the casting. ~~Barlow et al~~ Taccone fails to teach the use of fracture force generated by either effect of thermal expansion or energized streams such as pressurized fluids and explosives.

However, for the purpose of fracture enhancement, the fracture force is used and taught: the use of general effect of mismatch of thermal expansion by Bergna (col. 7, lines 61+) on binder and mold removal from he casting, the use of pressurized fluids by Swanson et al (col. 4, lines 4+), the use of explosives by Schimmel et al (col. 2, lines 59+) and the use of shock wave by Heine et al (col. 2, lines 1+). It would have been obvious to one having ordinary skill in the art to provide Taccone the use of fracture force generated by either effect of thermal expansion or energized streams such as pressurized fluids, explosives and shock wave as taught either Bergna, Swanson et al, Schimmel et al or Heine et al in order to reduce cycling time of removing casting from the sand mold.

4. Claims 8, 13, 20, 32, 40, and 42 rejected under 35 U.S.C. 103(a) as being unpatentable over Taccone in view of either Bergna, Swanson et al, Schimmel et al or Heine et al and further in view of Musschoot et al.

Taccone either in view of Bergna, Swanson et al, Schimmel et al or Heine et al fail to teach the use of enriched oxygen environment. However, Musschoot et al (col. 12, lines 41+) teach the use enriched oxygen environment for the purpose of combusting binder binding sand of core and mold. It would have been obvious to one having ordinary skill in the art to provide Taccone in view of either Bergna, Swanson et al, Schimmel et al or Heine et al the use of enriched oxygen environment as taught by Musschoot et al in order to reduce cycling time of removing binder and casting from the sand mold including core.

6. Claims 9, 16, 28, 41 and 43-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taccone in view of either Schneider et al, Swanson et al, Schimmel et al or Heine et al and further in view of Easwaran.

Taccone either in view of Bergna, Swanson et al, Schimmel et al or Heine et al fail to teach the use of combined casting and heat treatment. However, Easwaran (col. 5, lines 61+) teaches the use of combined casting and heat treatment when the casting is partially solidified for the purpose of controlling microstructure and enhancing mechanical property of the casting. It would have been obvious to one having ordinary skill in the art to provide Taccone in view of either Bergna, Swanson et al, Schimmel et al or Heine et al the use of Easwaran as taught by Easwaran in order to control microstructure and enhance mechanical property of the casting.

7. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taccone in view of either Schneider et al, Swanson et al, Schimmel et al or Heine et al and further in view of Easwaran and Musschoot et al

Taccone in view of either Schneider et al, Swanson et al, Schimmel et al or Heine et al and further in view of Easwaran fail to teach the use of removing core. However, Musschoot et al (col. 12, lines 13+) teach the use of heating and removing core for the purpose of removing core from the casting. It would have been obvious to one having ordinary skill in the art to provide Taccone in view of either Bergna, Swanson et al, Schimmel et al or Heine et al further in view of Easwaran the use of removing core as taught by Musschoot et al in order to reduce cycling time of removing core from the casting.

Response to Arguments

Applicant's arguments filed on 5/9/05 have been fully considered but they are not persuasive. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, applicant argued that Taccone only teaches of mold by solid contact with the mold, and does not even mention alternative approaches to mold-breaking. However, It would have been obvious to one having ordinary skill in the art to provide Taccone in view of prior art provides alternative approaches to mold-breaking.

8. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ing-Hour Lin whose telephone number is (571) 272-1180. The examiner can normally be reached on M-F (8:00-5:30) Second Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

I.-H. Lin

7-25-05

KEVIN KERNS Kevin Kerns 7/25/05
PRIMARY EXAMINER